

TITLE: Scholarly Electronic Full-text Publications via the Internet: Issues & Impacts.

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On-line access to complete texts of scholarly journal articles, conference papers, and books is facilitated by rapidly developing World-wide Web Internet access and capabilities. Meanwhile, print publications continue to be produced and read in spite of the proliferation of many networked electronic publications. The purpose of this presentation is to highlight fundamental issues impacting stakeholder groups, as the trend continues towards migration from paper to affordable ubiquitous networked full-text publications.

Librarians, publishers, authors and end-users have various viewpoints, interests, and concerns. There are many issues challenging all stakeholder groups. For instance, all share concerns about administering copyright compliance and enforcing fair use. Uncontrollable electronic downstreaming could result in infringed copyright, while limiting a publisher's entitled revenue stream. Moreover, metered fee-based access may hamper scholarly information research. And, self-authoring on the Internet without peer filtering could lead to information clutter.

Many related issues challenge librarians in particular. Among these are rising journal subscription prices, regardless if offered in print or electronic. Some electronic offerings are independent of print, others supplement or duplicate print; several publishers presently require subscribing to print in order to access electronic. Furthermore, numbers of publications are now being marketed via the Internet directly to end-users, which can be viewed as encouraging users to bypass the traditional library.

A key issue challenging publishers today is the rapidly expanding electronic user base that is demanding delivery of added-value full-text to desktop computers. Also of growing concern appears to be the decline in print sales to libraries, thereby reducing traditional revenue stream potential. Nowadays, publishers are more hesitant about investing in the production of publications geared toward small niche subjects, since these tend to require higher pricing and carry limited sales potential. Both electronic and print publications necessitate similar editorial, production, operating, and marketing dollars. Tradeoffs owing to delivery format difference do not necessarily mean less dollars need to be spent.

Authors wishing to publish books are facing a decline in the role of scholarly monographs in electronic media. However, they are witnessing increased roles of electronic preprints and electronic journal articles. Moreover, the Internet fosters self-publishing without peer monitoring or formal review.

Issues challenging end-users include electronic barriers to peer-reviewed formal published works (i.e., fee-based subscriptions to journal literature vs. traditional free-library concept). This often means password only access or IP

address controlled site-licensed access. Also, in an uncontrolled Internet environment, sometimes there is a blurring of publication authorship/ownership, as various pieces of publications are cut/pasted into/re-posted on various, disconnected Web searchable home pages.

The International Coalition of Library Consortia has zeroed in on several relevant issues including the fact that "...academic institutions and library clients expect their libraries to obtain new electronic resources, while simultaneously maintaining or growing traditional print collections until the electronic resources are fully stable." (Ref.1).

It is estimated that there are over 3000 scholarly journal titles currently being offered as electronic options to paper, which "...is roughly less than five per cent of all published titles...[and] include many of the most cited journals" (Ref.2). Similarly, thousands of books are also becoming network accessible. For instance, Carnegie Mellon University provides Web URL links to more than 7000 English Language titles, which are fee-free and not intended for commercial use. Numerous foreign language offerings are also proliferating.

Alliances are emerging between professional society and commercial publishers to foster added value full-text delivery options at some reasonable costs. In 1997, for instance, the Universal Research Archive of Networked Information in Astronomy (URANIA) was launched. Since its initial goal to deliver to researchers' desktops over 90 percent of the world's scholarly astronomy literature, now "...electronic articles, as well as the historical literature are interlinked both through the references and through the citations to each article" (Ref.3). Moreover, this distributed digital cyberlibrary of astronomy and astrophysics enables back and forth traveling among listed websites including such data centers as the Centre de Donnees Astronomiques de Strasbourg and the NASA Extragalactic Data Center (Ref.4).

In niche disciplines, pockets of distributed electronic preprint services continue to emerge. Wide and rapid dissemination of electronic preprints speed research results among colleagues and can be tracked via e-mail addressing while en route to eventual refereed publication. Many academic institutions continue to post preprints of their faculty, but most of these websites are independent and require scientists to log on to many different sites in order to peruse comprehensively relevant research results of interest. Some obvious other limitations include lack of standardized presentation formats and no cross-institutional subject/author/keyword indexes of what is broadly available. To help overcome these types of limitations, some projects have been undertaken in recent years to facilitate standardizing the collection, indexing, and more centralized dissemination of preprints by discipline. For example, the NASA Applied Information Systems Research Program funded the development of a distributed database of on-line astronomy preprints (Ref.5).

In all of the above and similar initiatives, striving for facilitated global sharing of electronic information content carries both upstream and downstream

implications that can impact and influence outcomes. Enroute from information producer to information user is a mosaic of inextricably connected factors including the following: presentation factors; time and schedule factors; ; economic factors; ambiance factors; intellectual property factors; delivery medium factors; storage factors; access factors (Ref.6).

Presentation Factors

Emerging hypermedia publishing options on the Web continue to impact authoring practices. A growing number of readers expect flexibility and ease of electronic navigation. This implies links to be able to readily contact authors via e-mail, as well as links to be able to retrieve from cited references related data such as abstracts and full page images on screen. Journal articles delivered in static page-oriented, link-free formats (e.g., pdf), which merely mimic linear print, tend to be less welcome than HTML prepared publications, in this new era of matrix forms of electronic publication delivery. (Ref. 7).

Hypertext publications can be considered active documents. They are easily modified and can readily link to new information resources. Whereas, revisions to quiescent text traditionally means producing subsequent editions, with accompanying time delays, in order to incorporate changes. Volatility of hypermedia presents new challenges for librarians, who need to track their collection holdings. Librarians are now challenged to provide control over a document that is dynamic and whose content can change momentarily. The implication of this is that the stable world in which an item can be catalogued once and that cataloguing shared via bibliographical utilities (e.g., OCLC) becomes uncertain. Also, the concept of an *edition* takes on new, possibly cloudy, meaning. (Ref.8)

Economic Factors

Many libraries approach the twenty-first century with dwindling purchasing power and retrenchment mandates. Print publication costs continue to escalate, while publishers strive to recoup their expenses with some degree of profit margin. Conventional publishing usually encompasses outlays for functions such as evaluation/selection of manuscripts, copyediting, typesetting, proofreading, printing, binding, shipping, warehousing, marketing, order-taking, and royalty payments. Publishing in digital formats tends to merely shift costs, not necessarily reduce all of them. For example, digital file preparation costs might parallel those for hard copy, while showing significant reduction where delivery aspects come into play. For instance, delivery of conventional text in machine-readable format might shed such costs as warehousing and shipping. However, "...if links and multimedia features are incorporated, the coding costs of the digital medium are likely to be much higher" (Ref.9).

Costs to Libraries is presently often reasonable in cases where subscriptions are placed to both the paper and electronic versions of some

scholarly periodicals. "For the first year, the costs for a combined electronic license and paper subscription appear to be about ten percent more than paper only." (Ref.10). In out years, expectations are for higher assessments. One way for a library to leverage rising subscription costs is to become a member of several consortia. Pricing advantages are often offered to organizations in partnership. For example, libraries can enter into collaborative agreements for site-wide Web access to the International Digital Electronic Access Library (IDEAL), which offers 174 electronic full-text Academic Press journals, as well as selected titles of two other publishers. Thus, Academic Press continues to reach agreements with many third parties including academics, industrial and corporate institutions, and other electronic information vendors, who in turn pass on cost savings to their respective partners. Moreover, its IDEAL plan offers a three-year agreement providing full access to both bibliographic and complete text at all sites within a licensed consortium, providing the print version of each title resides somewhere (i.e., necessarily at every member institution) within the consortium. While each consortium member institution has site-wide unlimited access within its institutional Internet domain to the full 174 plus titles via a Web interface, they pay proportionately only a share of the total cost. That share is usually being determined by the fraction of covered titles to which they now subscribe in hard copy (Ref.11).

Just-in-time acquisition of certain digital publications via the Web is attracting both Libraries and end-users directly, as increasingly more title options become available. It has been forecasted that "...it eventually will be cost effective to stop building local collections altogether and instead buy the information one needs only when one needs it." (Ref.12). Meanwhile, Libraries continue to compete for customers and continue for the most part to be in the business of shared access primarily of paper, while offering its users with some on-line site-licensed options as well.

Little-read scholarly monographs present special problems both to publishers and libraries, who are striving to reduce just-in-case hard copy processing and storage space costs. On the other hand, authors of publications on niche topics still desire scholarly routes to insuring that their ideas get published. Also, the on-line advantage of publishing manuscripts in electronic format (i.e., being able to serve multiple readers simultaneously) can be considered by electronic publishers of limited value, when one anticipates a work to be read up to only 50 times over 50 years (Ref.13).

Ambiance Factors

The phrase *reading in comfort* takes on new meaning to a reader faced with the choice of whether or not to curl up--with vintage print publication in hand--into the sturdy softness of an overstuffed armchair or to opt for that ergonomic adjustable seat in front of a computer screen.

And, strain is more than a 6-letter-word when associated with large computer workstations. Avoiding eye strain, back strain, and wrist strain necessitates taking often new and different precautions. Where bright, preferably natural light has traditionally been advocated for paperwork, VDT users are encouraged to dim overhead lighting and to use filters to reduce display screen reflections. Where bifocals aid in reading print on paper, they are not recommended for extensive work at computer terminals. Many public ordinances are being issued to insure that workstation health is maintained. For instance, a San Francisco Worker Safety Ordinance specifies workstation standards that mandate "...user-adjustable workstations, and chairs that are upholstered, swiveling, with seat pan and backrest adjustable for height and angle...and...wrist rests...that enable operator to maintain neutral position" (Ref.14).

Miniature computers in the form of palm-sized electronic books are now being designed. Models are light in weight and have built in modems, reasonable memory, and high contrast screens. For instance, NuvoMedia, Inc. has developed a one-screen paperback-sized grayscale Rocket eBook that weighs 1.25 lbs. that is Web accessible for downloading already digitized books and claims a 4,000-page capacity. Everybook, Inc. advertised a two full-page touch screen EB Dedicated Reader that weighs about 3.7 lbs. and features a 16 million color palette and 5000,000 full-color page capacity (Ref. 15).

Meanwhile, traditional bookstores are striving to increase their appeal to present and potential customers. Many continue to enhance their interior atmospheres by adding coffee bars and cafes and comfortable living-room couches. Meeting this type of competition, Internet-equipped storefront establishments continue to proliferate such as the Camarilla Coffee House/Cyberlounge in Ada, MI that advertises ESPRESSO LINKS TO THE WORLD ONLINE (Ref. 16).

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